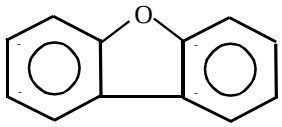
DIBENZOFURAN

Dibenzofuran is a federal hazardous air pollutant and was identified as a toxic air contaminant in April 1993 under AB 2728.

CAS Registry Number: 132-64-9

Molecular Formula: $C_{12}H_8O$



Dibenzofuran is a crystalline solid. It is soluble in hot benzene, alcohol, acetone, ether, and acetic acid, and is insoluble in water (HSDB, 1991; Sax, 1987).

Physical Properties of Dibenzofuran

Synonyms: diphenylene oxide; dibenzol(B,D)furan; 2,2'-biphenylene oxide; (1,1'-biphenyl)-2,2'-diyl oxide

Molecular Weight:	168.19
Boiling Point:	287 ºC
Melting Point:	86 - 87 ºC
Vapor Density:	5.8 (air = 1)
Density/Specific Gravity:	1.0886 at 99/4 ºC (water = 1)
Vapor Pressure:	0.0044 mm Hg at 25 ºC
Log Octanol/Water Partition Coefficient:	varies 3.18 - 4.12
Conversion Factor:	1 ppm = 6.88 mg/m^3

(HSDB, 1991; U.S. EPA, 1994a)

SOURCES AND EMISSIONS

A. Sources

Dibenzofuran has been detected in emissions from combustion of coal, biomass, refuse, diesel fuel, and tobacco. It is also found in leachates from commercial coal tar and is formed from the incomplete combustion of propane. Dibenzofuran also is a photolytic product of environmental photolysis of chlorinated biphenyl ethers in surface waters by sunlight (HSDB, 1991).

The primary stationary sources that have reported emissions of dibenzofuran in California

are lumber and wood products manufacturers, and manufacture of fabricated metal ordnance and accessories (ARB, 1997b).

B. Emissions

The total emissions of dibenzofuran from stationary sources in California are estimated to be at least 26 pounds per year, based on data reported under the Air Toxics "Hot Spots" Program (AB 2588) (ARB, 1997b).

C. Natural Occurrence

No information about the natural occurrence of dibenzofuran was found in the readily-available literature.

AMBIENT CONCENTRATIONS

No Air Resources Board data exist for ambient measurements of dibenzofuran. The United States Environmental Protection Agency (U.S. EPA) monitored dibenzofuran from 1985 to 1986 at 6 urban sites in Texas and found no detectable concentrations (U.S. EPA, 1993a).

INDOOR SOURCES AND CONCENTRATIONS

No information about the indoor sources and concentrations of dibenzofuran was found in the readily-available literature.

ATMOSPHERIC PERSISTENCE

The dominant tropospheric loss process for dibenzofuran is by gas phase reaction with the hydroxyl radical. The atmospheric half-life for dibenzofuran, due to its reaction with hydroxyl radicals, is estimated to be 2.5 days. Nitrodibenzofurans were observed in low yield (Kwok et al., 1994).

AB 2588 RISK ASSESSMENT INFORMATION

Dibenzofuran emissions are not reported from stationary sources in California under the AB 2588 program. It is also not listed in the California Air Pollution Control Officers Association Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines as having health values (cancer or non-cancer) for use in risk assessments (CAPCOA, 1993).

HEALTH EFFECTS

Probable routes of human exposure to dibenzofuran are inhalation and dermal contact (U.S. EPA, 1994a).

Non-Cancer: No information is available on the acute, chronic, reproductive and developmental, effects of dibenzofuran in humans or animals. The U.S. EPA is reviewing the Reference Concentration (RfC) for dibenzofuran and has not established an oral Reference Dose (RfD) (U.S. EPA, 1994a).

Cancer: No information is available on the carcinogenic effects of dibenzofuran in humans. The U.S. EPA has classified dibenzofuran as Group D: Not classifiable as to human carcinogenicity (U.S. EPA, 1994a). The International Agency for Research on Cancer has not classified dibenzofuran with respect to potential carcinogenicity (IARC, 1987a).